AMENDMENTS TO THE CLAIMS

1. (currently amended) A method of managing computer processing resources connected within a network, said method comprising the steps of:

interconnecting a plurality of physical processing components within said network for providing a plurality of virtual processing elements that are accessible by respective network traffic paths to perform a respective processing operation;

representing a pool of said virtual processing elements using a resource aggregator, each virtual processing element having a capacity allocable according to a respective communication transfer rate based on a sustainable data flow rate to complete respective data processing transactions;

receiving a reservation request for utilizing specified processing resources;

said resource aggregator ~~identifying~~ exclusively reserving at least one virtual processing element for providing capacity to satisfy said reservation request in response to said respective communication transfer rate; and

allocating use of a respective network traffic path to service said reservation request in response to said identified virtual processing element.

2. (original) The method of claim 1 wherein said plurality of virtual processing elements includes multiple component types for performing respective processing operations.

3. (original) The method of claim 2 wherein said pool includes composite resource sets combining said respective processing operations to implement a predetermined composite service, each composite resource set being comprised of a plurality of said multiple component types.

4. (original) The method of claim 3 wherein said respective processing

operations within a composite resource set are characterized by predetermined interactions for integrating said processing operations into a service function.

5. (original) The method of claim 2 wherein said processing operations include a data manipulation function and a storage function.

6. (original) The method of claim 3 wherein each of said composite resource sets further comprises at least one transport link within said network for connecting said multiple component types.

7. (original) The method of claim 1 wherein said network is comprised of an Internet protocol (IP) network and wherein said step of allocating use of a respective network traffic path is comprised of sending an IP message in a bandwidth reservation protocol.

8. (original) The method of claim 1 wherein said network is comprised of an Internet protocol (IP) network and wherein said network traffic paths are comprised of label-switched paths.

9. (original) The method of claim 1 wherein said network is comprised of an asynchronous transfer mode (ATM) network and wherein said network traffic paths are comprised of ATM virtual paths.

10. (original) A method of forming a compositional service within a network employing a plurality of physical processing components, said method comprising the steps of:

a plurality of physical processing components advertising to an aggregator their respective virtual processing components according to a plurality of component types for

performing respective processing operations and advertising respective capacities of said virtual processing components, wherein said virtual processing components are addressable within said network as respective virtual network elements;

said aggregator constructing a plurality of service resource sets from said virtual processing components according to a service type, each service resource set comprised of a combination of said virtual network elements;

said aggregator receiving a reservation request from a remote user for utilizing resources according to said service type;

said aggregator allocating a selected service resource set for fulfilling said reservation request; and

said aggregator identifying said selected service resource set to said remote user.

11. (original) The method of claim 10 wherein said processing operations include a data manipulation function and a storage function.

12. (original) The method of claim 10 wherein each of said service resource sets further comprises at least one transport link within said network for connecting said virtual network elements.

13. (original) The method of claim 10 wherein said network is comprised of an Internet protocol (IP) network and wherein said step of allocating said selected service resource set is comprised of sending an IP message in a bandwidth reservation protocol.

14. (original) The method of claim 12 wherein said network is comprised of an Internet protocol (IP) network and wherein said transport link is comprised of a label-switched path.

15. (original) The method of claim 12 wherein said network is comprised of an

asynchronous transfer mode (ATM) network and wherein said transport link is comprised of an ATM virtual path.

16. (currently amended) Apparatus for providing a data processing service comprising:

a network including a plurality of transport links;

a plurality of physical processing components connected within said network for advertising a plurality of virtual processing elements that are accessible by respective network traffic paths to perform respective processing operations, each virtual processing element having a capacity allocable according to a respective communication transfer rate based on a sustainable data flow to complete respective data processing transactions;

a resource aggregator connected within said network for representing a pool of said advertised virtual processing elements, receiving a reservation request for utilizing specified processing resources, ~~identifying~~ exclusively reserving at least one virtual processing element for providing capacity to satisfy said reservation request in response to said respective communication transfer rate, and allocating use of a respective network traffic path to service said reservation request in response to said identified virtual processing element.

17. (currently amended) Apparatus for providing a compositional data processing service comprising:

a network including a plurality of transport links;

a plurality of physical processing components connected within said network for advertising respective virtual processing components according to a plurality of component types for performing respective processing operations and advertising respective capacities of said virtual processing components, wherein said virtual processing components are addressable within said network as respective virtual network elements; and

an aggregator for 1) constructing a plurality of service resource sets from said

advertised virtual processing components according to a predetermined service type, wherein each service resource set is comprised of a combination of said virtual network elements for performing processing operations required for said predetermined service type, 2) receiving a reservation request from a remote user for utilizing resources according to said predetermined service type, 3) allocating a selected service resource set for fulfilling said reservation request, and 4) identifying said selected service resource set to said remote user.

18. (original) The apparatus of claim 17 wherein said processing operations from different component types include a data manipulation function and a storage function.

19. (original) The apparatus of claim 17 wherein each of said service resource sets further comprises at least one of said transport links for connecting said virtual network elements.

20. (original) The apparatus of claim 17 wherein said network is comprised of an Internet protocol (IP) network and wherein said aggregator allocates said selected service resource set by sending an IP message in a bandwidth reservation protocol.

21. (original) The apparatus of claim 19 wherein said network is comprised of an Internet protocol (IP) network and wherein said one transport link is comprised of a label-switched path.

22. (original) The apparatus of claim 19 wherein said network is comprised of an asynchronous transfer mode (ATM) network and wherein said one transport link is comprised of an ATM virtual path.